In the Specification

Change the title to read -- FIELD ELECTRON EMISSION MATERIALS WITH INSULATING MATERIAL DISPOSED IN PARTICULAR AREA AND DEVICES—

Page 1, after the title, add the heading -- Background of the invention --

Page 5, at numbered line 23, add the heading -- Summary of the invention --

Page 14, lines 3 –7:

Brief Description of the Drawings

For a better understanding of the invention, and to show how embodiments of the same may be carried into effect, reference will now be made, by way of example, to the accompanying diagrammatic drawings, in which:

Figure 1a illustrates a known emission mechanism in which a conducting flake sits on an insulating layer;

Figure 1b is a proposed energy level diagram for an electro-formed conducting channel in the insulating layer of Figure 1a;

Page 15, numbered line 14, add the heading -- Description Of The Preferred Embodiments --

Page 19, lines 3 – 15:

Figure 4 shows an alternative method of making an emitter in which a conducting substrate 401 has a layer of insulator 402 and conductor 403 deposited upon it. Using, for

example, a patterned resist layer 404, the conducting material 402 is selectively etched 412 to leave fabricated particle analogues 411. In some cases it may be advantageous to also remove the portions 413 of insulating layer from between the particle analogues. The natural tendency for etching to form undercuts 415 below the resist pattern 404 facilitates the exit of electrons 416 from the electro-formed channel at the base of the structure. Said structures may be also constructed using the well established techniques of semiconductor fabrication. For example the insulating layer 402 may be formed by oxidising an otherwise conducting wafer and then metallised. A similar approach may be used to form the structures illustrated in Figure 2b.

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Figure 7 shows a useful process in which Step 1 a substrate 701 with insulator 702 and particles 703 has an area masked by a resist coating 704. In Step 2 a selective etch is used to remove the particles. In Step 3 the resist is removed to leave the masked areas 705 with field emitting properties.

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In Figure 13 a glass plate 170 has an optically transparent electrically conducting coating 171 (for example, tin oxide) onto which is formed a layer of MIV emitter 172 as described herein. This emitter is formulated to be substantially optically translucent and, being comprised of randomly spaced particles, does not suffer from the Moire patterning that the interference between a regular tip array and the pixel array of an LCD would produce. Such a layer may be formed with, although not limited to, a heat cured polysiloxane based spin-on glass as the insulating component. The coated cathode plate described above is supported above an anode

plate by spacers 179 and the structure sealed and evacuated in the same manner as the lamp shown in Figure 10a. The anode plate 177 which may be of glass, ceramic, metal or other suitable material has disposed upon it a layer of a electroluminescent phosphor 175 with an optional reflective layer 176, such as aluminum, between the phosphor and the anode plate. A voltage 180 in the kilovolt range is applied between the conducting layer 171 and the anode plate 177 (or in the case of insulating materials a conducting coating thereon). Field emitted electrons 173 caused by said applied voltage are accelerated to the phosphor 175. The resulting light output 174 passes through the translucent emitter 172 and transparent conducting layer 171. An optional Lambertian or non-Lambertian diffuser 178 may be disposed in the optical path. Similar approaches may be used to increase the luminance of addressable displays.

In the Claims

Amend claims 60 and 61 as follows:

60. (Amended) A method according to claim 24, wherein said conducting layer comprises a metal conducting element or compound, semiconductor or composite.

61. (Amended) A method according to claim 25, wherein said conducting layer comprises a metal conducting element or compound, semiconductor or composite.

Remarks

The examiner's reconsideration of the application is requested in view of the various amendments above, attachments hereto and comments which follow.